A TRACK CAP FOR A SLIDING DOOR

FIELD OF THE INVENTION

This invention is directed to a cap which can fit over the top of a sliding door track to prevent damage to the sliding door track. While the invention will be described with reference to a sliding door track, no limitation is meant thereby and the invention may also be applicable for other types of sliding members such as sliding windows, bi-fold doors and the like. However, as the cap is designed primarily to prevent damage due to heavier doors or windows, it is envisaged that the primary use of the cap will be over the top of a sliding door track, and especially for sliding doors which are large and heavy.

BACKGROUND ART

A sliding door is typically provided with two (and sometimes more) rollers which fit to the bottom of the door. The rollers themselves are well-known and typically comprise a roller wheel which is formed with a peripheral channel. The sliding door slides along a track. The track typically comprises a bottom track although some lighter doors can be supported by a top track. For the purpose of the present invention, the track will be described as a bottom track.

The bottom track is typically formed of extruded aluminium and forms part of the door sill. The door sill typically has a rear portion which can hold a fixed panel (such as a fixed glass panel), and a front portion which supports the sliding door. The front portion typically comprises a substantially flat base wall and an upstanding rail or rib along which the sliding door roller can roll.

This type of door sill is known and works well with a normal sliding door. In many cases, it is desirable to have a heavier and stronger door. Partially, this is for improved security as the sliding door is typically an external door. Also, many external doors and particularly glass doors are being fitted with double glazing or thicker glass panels to reduce external noise. Thus, these doors are now becoming heavier.

It is found that a heavier door can damage the track along which

the door moves. Typically, the extruded aluminium sill (containing the track) is powder coated. It is found that the heavier door places larger forces on the powder coated track and causes the powder coating to become damaged. Once the powder coating has become damaged, the underlying aluminium becomes visible and this can be quite unsightly. The track can also be damaged.

It is known to provide a stainless-steel U-shaped cap member which can be snap fitted over the top of the aluminium track. The steel cap member can prevent damage to the softer aluminium track. These steel cap members have been known in the marketplace for over 20 years. A disadvantage with the steel cap member is that it is difficult to fit, difficult to remove (if damaged), and is difficult and quite dangerous to transport to site. The primary reason for this is that the steel cap member comprises long lengths of relatively thin U-shaped steel members. To fit over the relatively small track, the steel members typically have a width of about 5 mm and a height of about 5 mm. However, as the steel members are rigid, and they must be the same length or longer as the track which used to be capped. Some aluminium tracks can be 3-4 metres long or even longer, which means that steel members are required having a similar length. At this length, the steel members comprise substantial projectile hazards. For instance, if a steel member is accidentally dropped from some height it will become a projectile hazard.

It is not desirable to cut the steel member to shorter lengths as it is necessary for the steel member to be the same length as the track in order to avoid the existence of a join. A join in the track cap can result in the sliding door no longer sliding smoothly.

It is difficult to fit a long steel cap member over a track. It is extremely important to ensure that the cap member does not kink or become bent as this will result in the door no longer sliding smoothly, and can also cause difficulty in fitting the cap over the track. Long lengths of relatively thin stainless-steel cap members are extremely prone to kinking.

Similarly, it is difficult to remove the fitted long steel cap member should this become necessary. It is found that the softer aluminium track is

quite often damaged when trying to lever off or otherwise remove the steel cap member. When removed, the steel cap member again presents a projectile hazard.

These long steel cap members are also difficult and hazardous to transport to site. Often, the cap members are damaged during transportation.

Another disadvantage with steel cap members is that the sliding action of the door can create an undesirable amount of noise. It is important to have a smooth and quiet sliding action especially for heavier doors.

It will be clearly understood that, if a prior art publication is referred to herein, this reference does not constitute an admission that the publication forms part of the common general knowledge in the art in Australia or in any other country.

OBJECT OF THE INVENTION

The present invention is directed to a cap which can fit over the track of a sliding door (or other similar member such as a sliding window, a bi fold door and the like), and which may overcome at least some of the above-mentioned disadvantages.

Briefly, this has been achieved by manufacturing the cap from a flexible material which can be cut to length and which can be stored and transported in a roll. It is found that this advantage substantially overcomes the disadvantages with the steel rigid cap members.

In one form, the invention resides in a cap for the track of a sliding door, the cap having a configuration to fit over the track of the sliding door, the cap comprising an elongate member which is sufficiently flexible to allow it to be stored and transported in a roll.

Typically, the cap will be manufactured of a plastics material to provide it with the flexibility to allow it to be stored and transported in a roll, while still being tough enough to function efficiently as a track cap.

The cap is preferably manufactured as a continuous elongate member which can be stored in a roll. A required length of the member can then be cut depending on the length of the track and can be fitted over the top of the track to provide a cap which does not have any joins.

Suitably, the cap has a channel like configuration to allow it to be fitted over the top of a track. The precise configuration will depend on the configuration of the track. A typical track has a "mushroom" type configuration in cross-section comprising a domed top portion and a narrower stem portion. For this type of track, the cap may have a channel like configuration to allow it to fit over the domed top portion, and optionally to extend down the stem portion .

The cap may be formed from various types of plastics material. Suitably, the plastics material is tough enough to take the forces associated with a heavy door roller. It is considered that a person skilled in the art will be able to develop plastics material to suit. The cap may be formed of composite materials to provide the flexibility and the toughness. It is considered that the cap may be formed of materials which are not metallic but which are also not plastics.

The cap may be configured to extend over the track such that the portion of the cap abuts or is closely spaced from the floor of the sill from which the track extends. Thus, the cap may comprise a substantially U-shaped cross-section having a pair of opposed sidewalls and a connecting top wall. The opposed sidewalls are preferably configured such that the or each sidewall abuts against the floor of the sill, or some other member or portion. The advantage of this is that it can prevent the cap from twisting of the track by the large forces on the cap from the door roller. It is envisaged that other configurations may be provided which can also provide this advantage.

The cap may be pressed fitted, snap fitted, press locked, or otherwise attached to the track. The channel of the cap, or some other parts of the cap may be formed with profiles, recesses, projections, abutments, ribs, slots and the like to assist in the fitting of the cap over the track. Alternatively, or in association with the above, the cap may be attached to the track by separate fasteners, by adhesive, and/or by a combination of the above.

It is found that if the cap is formed of plastics material, the sliding door will slide smoothly and with less noise than if the sliding door

directly contacts the aluminium track, or the stainless-steel cap as described above.

The cap may be easier to attach to the track if the cap is formed of plastics material as the plastics material can deform to fit about the track in a manner which is easier than with stainless-steel caps. A plastics cap can also be more kink resistant, can be coiled or rolled, and is much safer to transport and carry to the required site. The plastic cap does also not present a projectile hazard. The plastic cap is much easier to remove from the track should this become necessary.

The plastic cap can be conveniently cut to any track length and it is therefore not necessary to have long lengths of steel projectile like cap members.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will be described with reference to the following drawings, in which

Figure 1. Illustrates part of a bottom sill of a sliding door showing the door track.

Figure 2. Illustrates the sill of Figure 1 in cross-section.

Figure 3. Illustrates the sill of Figure 1 having a prior art stainless-steel cap fitted over the door track.

Figure 4. Illustrates the bottom sill of Figure 1 in fitted with a track cap according to an embodiment of the invention.

Figure 5. Illustrates an end view of the sill of Figure 4 with the track cap fitted.

Figures 6A-6L. Illustrate various other types of track caps according to embodiments of the invention.

BEST MODE

Referring to the drawings and initially to figure 1, there is illustrated a known extruded aluminium bottom sill 10. Bottom sill 10 is also illustrated in figure 2 in end elevation. Although various different types of bottom sills are available, the one illustrated in figure 1 and figure 2 will be sufficient to illustrate an embodiment of the invention. This particular sill has a vertical end wall 11 (see figure 2) and a horizontal base wall 12. The sill

has an intermediate vertical wall 13 which functions to divide the sill into a rear part 14 and a front part 15. Rear part 14 holds a fixed window or door (typically glass). Front part 15 supports a sliding door, window etc. In this particular embodiment, the sill is designed to hold a heavy glass sliding door. The glass door is not illustrated. The sliding door slides along a track 16. The track 16 forms part of the aluminium extrusion, and in this particular embodiment, the track has a "mushroom" shaped cross-section which comprises a domed upper part 17 and a thinner stem part 18. Of course, the precise configuration of the track can vary. The track extends entirely along the sill. The sill will have a length depending upon the width of the window or door, and the sill typically has a length of between 1.5-4 m. Thus, track 16 similarly has a length of between 1.5-4 m. This can of course vary to suit.

In use, a door roller (not illustrated but of conventional type) has a wheel formed with a peripheral channel which rides over the top of track 16. This arrangement is conventional.

For heavy doors, it is found that a powder coated sill can be damaged due to the weight of the door on track 16. Therefore, it is known to provide a stainless-steel cap 20 (see figure 3) which fits over the top of track 16. Cap 17 is formed of stainless-steel and is not sufficiently flexible to allow it to be wound into a roll such that it can be transported as a roll. Instead, the stainless-steel cap 20 is stored and transported in long rigid lengths which has the disadvantages which have been already described above. Another disadvantage with stainless-steel caps that it does not flex to fit snugly about track 16. This is illustrated in figure 3.

Figure 4 illustrates sill 10 where a flexible track cap 21 is being fitted over track 16. In the particular embodiment, cap 21 is made of extruded plastics material having a U-shaped channel cross-section which is better illustrated in figure 5. The plastics material is sufficiently flexible to allow it to be stored in a roll which can have a length much longer than the length of the sill. The plastics material can be progressively fitted over the top of track 16 as illustrated in figure 4. When track 16 has been entirely covered, the plastics material can be trimmed off to provide a single plastics cap over track 16.

Figure 5 illustrates cap 21 fitted over track 16. It can be seen the cap 21 can fit much more snugly over track 16 as it is more flexible than the stainless-steel strips which have previously been used as a track cap. In this particular embodiment, cap 21 is formed with internal longitudinal splines or ribs 22, to facilitate attachment over track 16.

Figures 6A-6L illustrate various other track cap configurations and illustrate that no limitation is to be placed on any one particular track design

It should be appreciated that various other changes and modifications can be made to any embodiment described without departing from the spirit and scope of the invention.